UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH
Escola Superior d'Enginyeries Industrial, Aeroespacial i Audiovisual de Terrassa

BEKASI-EAST JAKARTA AIRPORT
AIR SIDE

Report

Degree: Master's degree in Aerospace Engineering
Course: 220304 - Airports design and construction
Delivery date: 10-12-2017

Students: Abiétar Moreno, Sergi; Delgado Chicote, Miguel; Fernández Porta, Sergi; Fernández Sanz, Sergio; Fontanes Molina, Pol and Vidal Pedrola, Xavier

Contents

List of Tables

List of Figures

1 Airport location and characterization

1.1 Location

1.2 Meteorology

1.2.1 Temperature

1.2.2 Wind

2 Runway design

2.1 Introduction

2.2 Runway length

2.2.1 Runway length for reference aircraft

2.2.2 Final runway length

2.3 Runway width

2.3.1 Runway width for reference aircraft

2.3.2 Final runway width

2.4 Reference code

2.5 Declared distances

2.6 Protection and safety areas

2.6.1 Runway shoulders

2.6.2 Runway strips

2.6.3 Runway end safety area (RESA)

2.6.4 Stopway (SWY)

2.6.5 Clearway (CWY)

3 Taxiway design

3.1 Introduction

3.2 Taxiway width

3.3 Taxiway turns

3.4 Taxiway overwidths (sobreanchos)

3.5 Taxiway shoulders

3.6 Taxiway strips

3.7 Rapid exit taxiways

3.7.1 Introduction

3.7.2 Number of rapid exit taxiways

3.7.3 Design of rapid exit taxiways

3.8 Holding positions

3.8.1 Introduction

3.8.2 Minimum distance between holding position and runway

3.8.3 Interference with critical and ILS sensible areas

3.8.4 Interference with CWY and physical obstacles

4 Holding positions

4.1 Introduction

4.2 Minimum distance between holding position and runway

4.3 Interference with critical and ILS sensible areas

4.4 Interference with CWY and physical obstacles

4.4.1 Separation between aircraft (guardas entre aeronaves)

4.5 Final design of holding positions

5 Apron design

5.1 Introduction

5.2 Apron taxiways

5.3 Aircraft stands

5.3.1 General dimensions of aircraft stands

5.3.2 Dimensions for reference aircraft

5.3.3 Aircraft stands organization

5.4 No equipment and holding equipment areas

5.5 Apron trajectories

5.6 Service ways in apron

5.7 Terminal connections

6 Markings

6.1 Runway markings

6.1.1 Runway centerline markings

6.1.2 Runway side strip markings

6.1.3 Runway threshold markings

6.1.4 Runway ldesignation marking

6.1.5 Runway aiming point markings

6.1.6 Runway touchdown zone markings

6.2 Taxiway markings

6.2.1 Taxiway centerline markings

6.2.2 Taxiway strip markings

6.2.3 Taxiway holding position markings

6.2.4 Intermediate holding position markings

6.2.5 Runway entry holding position markings

6.2.6 Mandatory instruction marking

6.3 Apron markings

6.3.1 Apron lead in line markings

7 Lights

7.1 Runway lights

7.1.1 Approach lights

7.1.2 Approach slope indication systems

7.1.3 Runway threshold identification lights

7.1.4 Runway edge lights

7.1.5 Runway threshold and wing bar lights

7.1.6 Runway end lights

7.1.7 Touchdown zone lights

7.1.8 Runway rapid exit lights

7.2 Taxiway lights

7.2.1 Taxiway lights

7.2.2 Taxiway lights for an exit taxiway

7.2.3 Taxiway light for a rapid exit taxiway

7.2.4 Taxiway edge lights

7.2.5 Stop bar lights

7.2.6 Intermediate holding point lights

8 Signs

8.1 Mandatory instruction signs

8.2 Information signs

9 High-voltage electrical system

9.1 Electrical system general design

9.2 Connection sub-stations

9.3 Electric powerplant

9.4 Electrical transformation center

9.5 Channeling and distribution of the electrical system

10 | Medium voltage electrical system

10.1 Beacon circuits

10.1.1 Runway centerline lighting system

10.1.2 Taxiway centerline lighting system

10.1.3 Runway and taxiway centerlines lighting system

10.1.4 Approach lighting system

10.1.5 Touchdown zone lighting system

10.1.6 Runway header lighting system

10.1.7 RETIL electrical circuit

10.1.8 PAPI electrical circuit

10.1.9 Stop bar electrical circuit

10.1.10 Signs electrical circuit

10.2 Regulation chambers

10.3 Wire channeling

11 Aeronautical limitation surfaces

11.1 Physical limitation surfaces

11.2 ILS limitation surfaces

11.3 Localizer limitation surfaces

11.4 Gliding trajectory protection limitation surfaces

12 | Bibliography